

Total No. of Questions : 10]

SEAT No. :

**PF253**

[Total No. of Pages : 2

**APR-26/SE/Insem-312**

**S.E. (Robotics and Automation) (Insem)**

**METROLOGY AND QUALITY ASSURANCE**

**(2019 Pattern) (Semester - IV) (211511)**

*Time : 1 Hour]*

*[Max. Marks : 30*

*Instructions to the candidates:*

- 1) *Solve Q.1 or Q.2 and Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10 .*
- 2) *Assume suitable data if necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Draw neat figures whenever necessary*
- 5) *Use of scientific calculators is allowed.*
- 6) *Use of cellophane is prohibited in the examination hall.*

**Q1)** Differentiate between line standard and end standard. **[5]**

OR

**Q2)** Define Metrology and enumerate the objectives of metrology **[5]**

**Q3)** Explain with diagram the uses of sine bar and sine centre. **[5]**

OR

**Q4)** plain with neat sketch the construction and working of Auto-collimator **[5]**

**Q5)** Differentiate between Hole Basis and Shaft Basis system **[5]**

OR

**Q6)** Explain with neat sketch Construction of Sigma Comparator. **[5]**

**Q7)** Show schematically difference between Allocation of gauge tolerance and wear allowance for plug and ring limit gauges **[7]**

OR

*P.T.O.*

**Q8)** State Taylor's principle of gauge design. List out types of limit gauges used in industry. [7]

**Q9)** Design workshop type limit gauges for checking  $80H_8$ .

Given

- a) diameter 80 lies in 50-80.
- b)  $IT8=25i$ .

[8]

OR

**Q10)** Design limit gauges for checking  $90 h_9$  shaft.

Given

- a) diameter 90 lies in 80-100.
- b)  $IT9=40i$ .

[8]

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